Summaries

UDC 514.76

E.T. Ivlev, V.K. Barysheva, E.A. Moldovanova

ONE OF THE CLASSIFICATIONS OF *p*-FAMILY OF *m*-FLATNESS WITHIN THE *n*-DIMENSIONAL EUCLIDEAN SPACE

Private classes of linear subspace families within the multidimensional Euclidean space connected with a special type of reflections of some fields of invariant two-dimensional area are studied.

UDC 519.644

E.A. Shamsiev

CALCULATIONS OF INTEGRALS ALONG THE SPHERE SURFACE OF (*n*+1) DIMENSIONAL SPACE

The method of obtaining the cubature formula for multidimensional sphere (the accuracy degree is (2*m*−1)) is offered. This method works when the formula of the analogical accuracy degree for the sphere is known. The sphere size is one unit smaller.

UDC 621.314

E.E. Slyadnikov

HAMILTONIAN OF THE STRUCTURALLY UNSTABLE CRYSTAL

Hamiltonian of the crystal experiencing structural transition of the martensite type was built. The system of configurational excitation is described as a two-level quantum system (pseudospins quantum system).

UDC 537.533;539.219

N.N. Nikitenkov, Yu.I. Tyurin, D.Yu. Kolokolov, S.Kh. Shigalugov

THE MODEL OF THE SECONDARY ATOMS EXCITATION BY THE SURFACE PLASMONS

The model of the atom interaction moving near the surface with surface plasmons is offered. Solid surface is considered when free electrons approach the surface ("jelly" model), atom is considered within the two-level approach. Basing on both the perturbation theory derivation and Hamiltonians in the representation of the secondary quantification, the probability of atom excitation crossing the surface plasmons field is calculated. The atom parameters and plasmons field are taken into the consideration when fulfilling the calculation. The experimental data confirming the existence of the process considered are shown.

UDC 531:534.536.425

V.N. Belomestnykh, E.P. Tesleva

POLYMORPHOUS TRANSFORMATIONS OF THE KEY ORDER-DISORDER TYPE. PART 3. AMMONIUM INORGANIC SALTS

Polymorphous properties of ammonium inorganic salts are studied with the help of ultraacoustic and thermophysics methods: ammonium perchlorate (NH_4ClO_4), its deuterated analogue (ND_4ClO_4), and ammonium persulphate ($(NH_4)_2S_2O_8$).

UDC 536.46

E.R. Shrager, I.M. Vasenin, K.O. Sabdenov

COMPARATIVE ANALYSIS OF RESULTS CONCERNING THE PROBLEM OF DIFFUSIVE AND THERMAL FLAME INSTABILITY

The comparative analysis of the combustion instable areas obtained on the basis of the implementation of various model functions is carried out. The purpose of the analysis is to increase the speed of the chemical reaction. The profound effect of the energy quantity of the chemical reaction activation on the combustion instability forecast at the Lewis Le low number is shown. The theoretical explanation of the combustion stability at Le≈0 is given.

UDC 539.3;539.215

S.V. Astafurov, E.V. Shilko, A.V. Dimaki, V.V. Ruzhich, V.V. Lopatin, V.L. Popov, S.G. Psakhye

INVESTIGATION OF RESPONSE FEATURES OF INTER-BLOCK INTERFACES IN THE BLOCK-STRUCTURED MEDIUM TO THE CHANGE OF THEIR PHYSICO-MECHANICAL PROPERTIES AND DYNAMIC LOADING. PART II: COMPUTER-AIDED SIMULATION RESULTS

With the help of the computer modeling and movable cellular automation machines, theoretical research is carried out. It is aimed at the response of active boundaries division of the earth's crust structural-tectonic blocks to the vibratory impacts and changes in their conditions caused by irrigation. The calculation results were confirmed by the conclusions drawn on the basis of full-sized studies. Besides, on the basis of these results the role of their factors, which they play when changing the fracture nature is defined. All this can be used to explain the nature of the effects found out as a result of the experiment. The implementation method of the approach offered for man-caused control of the shift mode in the seismically active fracture zones based on the sputter-ion technologies implementation is developed.

UDC 622.24

V.D. Evseev, M.V. Petukhov, M.A. Samokhvalov

PULSE CURRENT COMING FROM THE WELL BOTTOM – THE SOURCE OF INFORMATION ABOUT ROCKS PROPERTIES

The offers to implement methods aimed at obtaining information on the failure nature of the rock and its structure. These methods are based on the electromagnetic signals. When the rock is destroyed it is impossible to register the signals due to their shielding and quick relaxation of newly formed discharges on the surface. The method, which allows to register the relaxation currents appearing in the process of drilling and rock shearing at the "rock – cutter" boundary line is introduced. The currents are completed in the outer loop "rock – cutter – machining work station – rock". It is suggested that this method should be used to control both the geological cross-section and the rock failure when drilling a well.

UDC 553.411.071.242.4+551.25

I.V. Kucherenko

IDENTIFICATION PROBLEM OF REGIONAL METAMORPHISM MINERAL ASSOCIATIONS AND NEAR-ORE METASOMATISM CONTAINED IN THE MESOTHERMAL GOLD DEPOSITS

The issue concerning the reconstruction of geological history of chemical elements within the wallrock area of hydrothermal gold deposits discussed. The approaches aimed at mineral rocks differentiation are implemented. They are differentiated according to the stages of their formation and further changes where the process of metamorphism and near-ore metasomatism takes place. All this is done to make the process of calculation of both the distribution statistical parameters and the chemical elements balance possible. The attention is paid to the conclusions reliability concerning metal geological history within the substrate. The accurateness of the conclusions depends on the identification of mineral products, which preceded the processes of geological ore formation.

The results of both mineral-petrochemical and geochemical research of almandine and binary paragneiss of Archean ultrametamorphic substance are shown. This substance contain of Irokindinski mesothermal gold deposit of quartz-vein type (North Transbaikalia). The near-vein metasomatic aureole zoning (the latter belongs to the beresite metasomatic formation), spatio-temporal and cause-effect bond of noble metal anomalies and matasomatic aureole at the stage of formation are shown. The conclusion falseness concerning the fact that the outer and intermediate zones of big near-ore metasomatic aureole belong to the derivatives of the previous regional metamorphism is proven. The regressive and progressive stages are singled out.

UDC 553.3/.4.078

A.T. Korolkov

GEODYNAMICAL PECULIARITIES OF METALLOGENIC FORMATIONS IN THE GOLD AREAS OF ZABAIKALIE

The metallogenic formations of the main gold areas of Zabaikalie from the point of view of geodynamical positions are considered. Both personal experience and different published materials are involved into this work. The significance of structures of both lateral squeezing and cupolas for collision stage, duplex zones and riftogenic cavities for the post collision stage of ore region formation is revealed.

UDC 539.12.04

A.P. Potylitsyn

CRYSTAL ONDULATOR POSITRON SOURCE

The efficiency comparison of the crystal ondulator positron source is carried out. It is shown that the variant offered is cheaper and more reliable.

UDC 539.21

Yu.I. Tyurin, S.Kh. Shigalugov, N.D. Tolmacheva

CRYSTAL PHOSPHOR LUMINESCENCE EXTINGUISHING BY ATOMIC OXYGEN. PART. II. THE MODEL OF EXTINGUISHING MECHANISM

The kinetic mechanisms of the diffusive extinguishing processes of crystal phosphor photoluminescence within the atomic oxygen atmosphere are considered. Besides, the reduction processes of the photoluminescence activity in the process of phosphor heating within the vacuum and other reductive atmospheres are described. Oxygen and hydrogen diffusion parameters within the crystal lattice with the low oxygen concentration are defined.

UDC 621.373.826

F.A. Gubarev, G.S. Evtushenko, V.B. Sykhanov, V.F. Fedorov

COPPER VAPOUR LASER PERFORMANCE IN THE MODE OF DECREASED ENERGY DEPOSITION INTO THE DISCHARGE

The paper studies the modes of decreased energy deposition into the discharge in laser based on pure copper vapours of low capacity. It is shown that when the active element is changed to the lower working capacity the power brought into the discharge decreases sufficiently. It becomes possible when the generation capacity decreases not sufficiently (in comparison with the regular working mode). Practical efficiency factor becomes 2,8 times higher, physical factor – 8,8 times higher.

UDC 537.521

V.V. Zhukov, V.P. Krivobokov, V.V. Patsevich, S.N. Yanin

DISCHARGE MAGNETRON PROPERTIES ON THE CONSTANT CURRENT. PART I. TARGET SPUTTERING MECHANISM

The probe measurements of the electrical potential spacious distribution in the direct current magnetron diode near the cathode are done. The ionization speed of the working gas, plasma density depending on the discharge current, coordinate distribution of both ion and electron discharge current components, power distribution of argon accelerated ions on the target surface are calculated. It is shown that the main processes within the plasma take place in the near-surface layer which is a few mm thick.

UDC 620.179.15

V.A. Zabrodski, I.O. Nedavni, O.A. Sidulenko

COMPARATIVE EVALUATION OF GAMMA-CONTROL TRANSMISSION METHODS OF COVERINGS

The mathematical description of information elaboration algorithms at Gamma-control of coverings transmission is introduced. Besides, it describes the necessity to measure currents of initial radiation of both the source and the roentgen fluorescent covering. The conditions under which any changes of parameters do not influence measuring results of the covering thickness are defined.

УДК 539.1.074

D.V. Goncharov, V.V. Ezhov, A.I. Pushkarev, G.E. Remnev

INVESTIGATION OF ENERGY DENSITY DISTRIBUTION OF A HIGH-CURRENT ELECTRON BEAM

The paper studies non-homogeneity of energy density of an electron beam formed by the planar diode with the explosive emission cathode. The method of measuring beam energy density distribution in the cross section with the help of the test film POR (5...50 kGr) is presented. The paper shows that in the range of the absorbed dose 5...120 kGr, optical density of the film grows linearly together with the increase in the absorbed dose. The two-dimensional matrix of energy density values is obtained which corresponds to the recorder of the electron beam on the test film. The elaborated technique allows to measure non-homogeneity of energy density of an electron beam with the spatial resolution over 1mm while measuring energy density absolute values.

UDC 621.039.51;541.126

V.I. Boiko, D.G. Demyanyuk, O.Yu. Dolmatov, D.S. Isachenko, I.V. Shamanin

USE OF MATERIALS OBTAINED IN THE TECHNOLOGICAL BURNING MODE IN RADIATION SECURITY ENGINEERING: CALCULATION STUDIES OF PROTECTIVE PROPERTIES

The calculative studies of properties of tungsten boride materials, boron carbide materials and their layer-by-layer combinations which protect from flows of quick neutrons and charged particles are carried out. It is revealed that the structure of the material, its porosity in particular, significantly affects protective properties of the material from flows of charged particles and γ-quanta. Protection efficiency increases at different combinations of pores concentration and their characteristic sizes.

UDC 66.023.2

I.A. Tikhomirov, D.G. Vidyaev, A.A. Grinyuk

ANALYSIS OF PERFORMANCE OF AMALGAMATE – EXCHANGE COLUMN WITH HIGH EXTRACTION RATE

The equations describing the process of isotopes separation in phases at high extraction rate are obtained. Under particular conditions, each of these equations is reduced to the equation of the column with low extraction rates. It is shown that the number of theoretical plates decreases with the increase in the extraction rate, while at the column's functioning with the high extraction rate the value of the exchange flux is the same for both amalgamate and solution phases.

UDC 621.039.542.34

I.I. Loktev, K.Yu. Vergazov, V.A. Vlasov, I.A. Tikhomirov

ON THE SUBJECT OF SIMULATING CERTAIN TECHNOLOGICAL PROPERTIES OF DISPERSIVE MATERIALS

The paper considers the models of technological behavior of powder materials concerning the issues of their packing, mixing and influencing homogeneity and stability of fuel pellets

UDC 621.039.542.34

I.I. Loktev, V.A. Vlasov, I.A. Tikhomirov

ON THE ISSUE OF TECHNOLOGICAL PROCESS SIMULATION

The paper considers the general regularities which may be applied to any manufacturing process of industrial goods. Taking into account the well-known mathematical methods, the models are proposed which enable to solve the tasks of analysing the technology of goods manufacturing, as well as its designing and optimisation.

UDC 661.879:621.365

V.N. Brendakov, Yu.N. Dementiev, S.N. Kladiev, V.P. Pishchulin

TECHNOLOGY AND EQUIPMENT OF URANIUM OXIDES PRODUCTION

The paper studies the process of uranium oxides production through decomposition of ammonium tetrauranates. The derivatographic analysis of pentahydrate of ammonium tetrauranate is conducted. The system

of equations is proposed for describing the process of ammonium tetrauranate decomposition in the drum-type rotating furnace.

UDC 661.878

T.I. Guzeeva, A.S. Levshanov, F.V. Makarov, V.A. Krasilnikov

INVESTIGATING THE FLUORINATION PROCESS OF POWDER OF TUNGSTEN AND COBALT CARBIDE HARD ALLOY METALS BY ELEMENTARY FLUORIDE

The paper presents the results of the experiments on fluorination of tungsten and cobalt carbide hard alloy metals by elementary fluoride. The kinetic regularities of the process within the temperature range 300...450 °C for WC (Co) and 250...450 °C for Co are defined; the values of the seeming activation energy are given; the limiting fluorination phases for the hard metal alloy BK-6 and cobalt powder are determined; the kinetic equations are derived.

UDC 669.018.95

V.A. Karelin, S.P. Andriets, A.P. Yuferova

INVESTIGATION OF THE INFLUENCE OF MECHANICAL ACTIVATION OF RAW MATERIALS ON THE PROPERTIES OF SYNTHESISED HIGH-PURITY SILICA CARBIDE

The paper investigates granulometric, phase and chemical composition of high-purity silica carbide samples obtained from preliminarily washed powder of polycrystalline silica of different granulometric composition. The technology of silica carbide synthesis from mechanically activated silica carbide is developed. It is shown that the synthesised product has the properties required for obtaining compact ceramic items.

UDC 544.723

M.A. Gavrilenko, A.S. Boev

COMPLEX FORMATION UNDER MODIFYING POLYETHYLENE GLYCOLIC CHROMATOGRAPHIC PHASES BY ACETYL ACETONES OF METALS

The paper assesses complex formation capacity of nickel, copper, iron and zinc included into the acetyl acetone complex with organic sorbates and polyethylene glycolic stationary phase for gas chromatography. The efficient sorption heat and pure sorption heat, as well as stability constants in complex formation with the metal between a sorbate and nucleophil fragments of polymeric stationary phases are calculated.

UDC 543.025;543.08

S.V. Romanenko, A.G. Stromberg, E.V. Larionova, D.M. Karachakov

CONECTION OF PHENOMENOLOGICAL AND PHYSICAL-CHEMICAL MODELS OF ANALYTICAL SIGNALS IN STRIPPING VOLTAMMETRY

The paper studies the connection of phenomenological and physical-chemical models of analytical signals in stripping voltammetry. The model of reversible anode and cathode electrode processes on the mercury-film electrode is chosen as a theoretical one. The commonly accepted way of presenting physical-chemical models in voltammetry is the use of the non-dimensional parameter (H) which includes potential sweep speed, thickness of an electrode, substance diffusion coefficient, number of transmitted electrons and temperature. To describe theoretical peaks, the phenomenological function of the product of two logists coming from the opposite directions with five empirical coefficients is constructed. The simple interrelations of the parameter H with empirical parameters of the function of the product of two logists coming from the opposite directions are defined.

UDC 546.87+54.381

O.I. Pugacheva, L.N. Bugerko, E.P. Surovoy, V.M. Pugachev

BISMUTH IODIDE (III) IN THE ANALYSIS OF ALKYLPHENOL ADDITIONS IN OIL-PRODUCTS

The paper studies the possibility of bismuth iodide application in the analysis of alkylphenol additions in oil-products. The thin-layered chromatographic plates detected by the saturated spirit solution of bismuth iodide have a wider spectral colouring range and contrast rate if compared to chromatograms detected in iodine vapours. With the use of this method the storage time of detected chromatograms increases significantly (over three years). Interaction of bismuth iodide with phenol is studied by the methods of thin-layered chromatography and Fourier-transform IR spectroscopy. It is revealed that a new product is formed as a result of the reaction.

UDC 553.985:665.642:547.912

V.R. Antipenko, O.A. Golubina, I.V. Goncharov, S.V. Nosova, Yu.V. Rokosov

COMPOSITION OF NATIVE ASPHALTITE HYDROTERMAL CONVERSION PRODUCTS

Using GLC-MS method, a comparative analysis of the molecular composition of hydrocarbon and non-hydrocarbon components of the oil fraction of native asphaltite and products of its hydrothermal conversion (400 °C, 40 MPa, 0,5 and 1 h) is carried out. It is shown that the compositions of practically all the classes of the compounds significantly differ from the compositions of the components of oils of initial asphaltite. It is indicated by the regular change in a number of widely used parameters of thermal maturity. However, it is observed that the changes of several parameters of thermal maturity do not closely agree with the desired ones. Anomalously high contents of anthracene, 2-methylanthracene and benzo[b]carbazole are among other unusual compositional features of the obtained products. The data obtained in the study are the evidence of our previous conclusions about lower thermal maturity of petroleum, which formed Ivanovsky asphaltite deposit.

UDC 536.4

T.A. Nagornova

MATHEMATICAL SIMULATION OF FREEZING PROCESS OF MOISTURE-SATURATED GROUND

The paper concentrates on solving the problem of ground freezing by using the mathematical model which considerably differs from the classical Stefan equation and which does not clearly distinguish the boundary of phase transition. The problem is solved by the method of finite differences with the use of the implicit iteration differences scheme. It is revealed that with the proposed approach the results are obtained which deviate from the expected ones by 4,4 % according to temperatures and the coordinate of freezing front while solving one-dimensional task.

UDC 621.833.3

A.B. Vinogradov

DIFFERENTIAL METHO D OF DEFINING CONTACT MOVEMENT SPEED AT LINEAR TOUCHING OF INTER-ENVELOPING SURFACES

The paper states the differential method of defining the speed of contact movement on the enveloping and enveloped surfaces. The proposed method has been used for studying the speed of contact movement on the surface of the wheel tip in orthogonal globoid gearing with the initial cylindrical evolvent wheel.

UDC 622.233.45

A.N. Glazov

OPERATION PROCESSES OF PERFORATOR PNEUMATIC MECHANISM

The paper considers the regularities of operation processes and the operation cycle of the impact unit of a hammer drill taking into account the operation oscillogram and the following constructed graphic dependences: pressure-gas volume; pressure-air specific volume; indices of thermodynamical processes and relative time energy exchange; total internal energy of air on the way of the piston and within time, and specific air energy on the way of the piston.

UDC 539.3

A.A. Svetashkov, A.V. Makhov

FORMULATION OF EQUATIONS OF TWO-DIMENSIONAL ELASTICITY THEORY IN THE FORM OF BOUNDARY-VALUE PROBLEM FOR THE CAUCHY-RIMAN SYSTEM

The paper uses the correlations between the eigenvectors of the equations system of the plane elastic problem of the elasticity theory in displacements. The new formulation of the boundary-value problem of the elasticity theory is obtained when dealing with voltage values given at the boundary in the form of Dirichlet problem for equilibrium equations in the form of the system of the first order differential equations Cauchy-Riman system.

UDC 622.24.05

A.P. Slistin

SIMULATING OBSTACLES OF ELASTICITY-WEIGHT TYPE

The paper states the analytical dependences of waves' passing the obstacles which have both elasticity and weight characteristics. The numerical results are obtained which are in a good agreement with the experimental data (error is <7 %).

UDC 517.584

V.M. Zamyatin, V.A. Dubovik

INFLUENCE OF MISBALANCE ON CENTRIFUGAL MACHINE DYNAMICS

Oscillations of a centrifugal machine hung in the elastic suspender are considered. Movements of the system with three degrees of freedom are studied. At the presence of misbalance, the rotor movement equation is obtained and the trajectory traced by its axis is defined.

UDC 661.487.621.313

S.V. Kokorev, V.G. Bukreev

SYSTEM OF FUZZY TEMPERATURE REGULATION OF ELECTRIC HEATERS

The paper views the structure of the system of automatic control of a technological object based on the fuzzy-set theory. The results of the simulation of the fuzzy regulator are presented, and the assessment of its efficiency in comparison with two-positional and proportional-integral-differential regulators is carried out.

UDC 621.375.4

O.V. Stukach

SPEEDING UP CHARACTERISTICS OF THE ULTRA-WIDEBAND DARLINGTON AMPLIFIER

The paper considers the Darlington amplifier which differs from its analogs by the expanded working frequency band through the use of the low frequency filter. The expression for the amplifier transfer factor is found from which the conditions for optimal operation of the cascade are obtained. The amplifier ensures expansion of the frequency band by 30 % without decrease in the dynamic range; input and output matching is preserved. Computer simulation of the amplifier in nonlinear mode is performed. It is shown that the amplifier differs by the invariant character of impulse response to the effect amplitude. Taking into account the basic circuit, the two-cascade amplifying module is carried out for measuring devices and communication units.

UDC 629.423.316

S.G. Shantarenko

POTENTIAL ENERGY OF DRIVE MOTOR ARMATURE

The paper presents the detailed analysis of the potential energy change in drive motor armature depending on the divergence of technological parameters from standard values. Expressions allowing optimizing the technology of motor repair works are also shown.

UDC 532.529

B.V. Boshenyatov

HYDRODYNAMICS OF MICRO BUBBLE GAS-LIQUID MEDIA

The paper briefly reviews the studies of hydrodynamic characteristics of micro bubble gas-liquid media with the increased (up to 2,5 %) concentration of micro bubbles. It is shown that the properties of such medium are similar to those of one-phase incompressible liquids. However, when micro bubble gas-liquid media flow in smooth pipes, presence of micro bubbles imparts flow streams with properties which are typical of the two-phase medium.

UDC 532.529

B.V. Boshenyatov

INVESTIGATION OF FLOW STREAMS OF MICRO BUBBLE GAS-LIQUID MEDIA IN SMOOTH PIPES

The paper gives the characteristics of gas-liquid bubble flow streams in smooth, horizontal pipes with microscopic diameters of bubbles (from 10 to 80 mcm) and volumetric gas contents from 0 to 0,5 %. It is shown that the Reynolds' law of similarity is true only for turbulent flow streams. Transition to the turbulent mode takes place at the minimal transition Reynolds number. In addition to the transition Reynolds number, one should use supplementary criteria connected with the relative bubbles size in order to describe laminar and transitional modes of flow streams.

UDC 504.064(4)

A.V. Zamyatin, N.G. Markov

AN APPROACH TO THE MODELING OF THE EARTH SURFACE CHANGES USING CELLULAR AUTOMATION

The paper presents an approach to the modeling of the earth surface based on probation formation of cellular automation operational rules. The research results of the suggested approach carried out in model alternative images are shown. The approval results of this approach in case of the earth surface dynamic analysis based on satellite survey are discussed using the example of Khanty-Mansiisk autonomous region.

UDC 681.3.06:504.009

I.A. Botygin, Yu.V. Volkov, V.N. Popov, V.A. Tartakovsky

COMPUTING TECHNOLOGIES IN PROBLEMS OF DENDROECOLOGY DATA PROCESSING

The paper describes a computing technology that provides an access to information in the sphere of dendroecology and software for the analysis of tree-rings in order to investigate parameter changes in the environment. Fundamental properties of tree radial growth form the basis of tree-rings modeling, i.e. monotony of growth in time and space and limitation of its speed, and changes of wood density are considered as a space-time oscillatory process. The technology is based on dynamic control of distributed calculation resources.

UDC 612.821.11.35

O.G. Berestneva, E.A. Muratova

MODELING OF STUDENTS COPING STRATEGIES AT A TECHNOLOGICAL UNIVERSITY

The paper is devoted to the urgent problem of students modeling strategies in the context of psychological coping with stress situations. The classification and factor models reflecting the style of coping behaviour typical of sophomore students of technical universities are presented. The efficiency of classification models used to solve the problem of coping strategies as the main forming factors of students' social and psychological competence are demonstrated.

UDC 519.7;519.711

O.M. Zamyatina

MODELING METHOD AND COMPLEX ANALYSIS OF BUSINESS PROCESSES

The paper presents the possibility of combined implementation of strategic and dynamic modeling using the example of enterprises' business processes in order to describe, optimize, and introduce corporate information systems. The set-theoretical mechanism of formalized definition of enterprises' business processes models by means of IDEF0, IDEF3 and SIMAN-methodologies are developed for the implementation of the method.

UDC 33

E.E. Ponomareva

THE EFFECT OF INSTITUTIONAL CHANGES ON THE ECONOMIC PROCESS

The paper describes institutional changes being a necessary requirement to highly effective economic development. Opinions of the representatives of the institutional economic theory concerning the nature of institutional changes, as well as the reasons for their emergence and influence on economic reforms are considered. Causes of institutional innovations by economic subjects are investigated.

UDC 338:65

V.V. Litovchenko

GENERAL AND PECULIAR FEATURES IN THE FORMATION OF FINANCIAL STRATEGIES

The paper considers methodological basics of financial strategies formation. The need and advisability of uncertainty at financial strategies formation of an enterprise are discussed; factors, structure, and implementation of financial strategies are shown. The information included into the article allows expanding managerial abilities which provide more effective decisions concerning stable development of the enterprise.

UDC 336.225+339.543

A.P. Abramov

MODERN ASPECTS OF TAX AND CUSTOMS PAYMENT ADMINISTRATION

The paper considers some theoretical and practical problems of tax and customs payment administration. It analyses Budget, Tax, and Customs Legislations in terms of their correspondence with each other and efficiency requirements of the state financial system. Methods of reducing the costs of all participants of the revenues formation process are suggested.

UDC 330.34.01:328.184

G.A. Barysheva, Yu.S. Nekhoroshev

POWER AND BUSINESS: LEGAL AND CRIMINAL RELATIONS

Relations between power and business are based on heritable traditions of governmental involvement into the economy as well as on the development level of market institutions. The union of lobbying and corruption in Russia is caused by the executive power structures, governmental relations, which is impossible from the point of view of a civilized society. Different approaches to defining causes of the corruption in Russia imply controversial methods of struggle against corruption. The transparency of the decisions made, economic, legal and political stability should become the key principle of the system of joint power and business responsibilities.

UDC 343.9

V.V. Sobolnikov

BASIC TENDENCIES OF MIGRATION DELINQUENCY AND ITS PECULIARITIES IN SIBERIAN FEDERAL DISTRICT

The tendency to absolute and relative growth is typical migration delinquency in Siberian Federal District and in whole Russia. At the same time, the legal regime does not provide the efficiency of its prevention. The urgency of the problem requires thorough analysis of its peculiarities in Siberia which are obvious at defining criminal connections between transnational, transboundary delinquency with ethnic criminal structures and dividing spheres of influence among them. Another peculiarity of this problem is increased criminal activity of Chinese People's Republic citizens acting on the territory of Siberian Federal District. The intensification of social danger and high latency of migration delinquency, intense distribution of corruption and other tendencies prove the need for monitoring and system development for the prevention of such situations.

UDC 378.012

V.B. Agranovich

INNOVATIONS IN EDUCATION DURING TRANSITIVE PERIOD OF SOCIAL DEVELOPMENT

The issue of transitive society is widely discussed among different scientists. The given paper investigates social and philosophical issues, distinguishes the main features typical of the society of this period. The transitive process is naturally connected with the innovative process. The article deals with complicated dynamics of these relations in categorical sphere of "open" and "closed" society in order to transfer from general social and philosophical approach to the individual one, i.e. to the problem of innovations in education and their regular conditionality of the "open" society.

Peculiar features of innovative university development pointing out development perspectives of such universities in the educational community of Bologna agreements are considered.

UDC 001

N.A. Knyazev

PHILOSOPHICAL BASICS OF SCIENCE ESSENCE PROJECT ANALYSIS

The paper considers the problem of the modern theory of science essence, introduces the notion of "science project analysis", and discusses the content of dialectic and metaphysical scientific projects.

UDC 17

A.Yu. Chmyhalo

PHENOMENON OF REPEATED DISCOVERIES AND PROBLEM RELATIVIZM IN PHILOSOPHY OF THE SCIENCE

The phenomenon of repeated discoveries in the context of problem discussion concerning relativism in modern philosophy of a science is considered. The conclusion concerning the fact that overcoming the relativism is connected with the elimination reductionism typical of a traditional science is made. A set of complementary principles in cognitive activity of the mankind, among which there are individual, social, cultural ones form the basis of this approach.

UDC 14:001.8

A.F. Stepanishchev

FORMATION OF THE UNITY OF PHILOSOPHICAL AND SCIENTIFIC RATIONALITY IN TERMS OF DETERMINISM CONCEPTION

The article deals with co-evolution of theoretical aspects of philosophical and scientific rationalities at classical, non-classical and post-nonclassical levels of their development.

UDC 378:37.037.1(571.1/5)(09)

V.V. Petrik

SOME ISSUES OF PHYSICAL TRAINING AND SPORTS DEVELOPMENT IN SIBERIAN HIGHER SCHOOL (END OF 1950^s – BEGINNING OF 1990)

The paper considers the state and development of physical training and sports in Siberian higher educational institutions at the end of the 1950^s – beginning of the 1990^s. It analyses and evaluates forms, content, and results of Siberian universities in this sphere of activity.

UDC 51:681.3

G.V. Erofeeva, O.N. Efremova, E.A. Sklyarova

METHODOLOGICAL AND METHODICAL ASPECTS OF THE EDUCATIONAL SYSTEM OF MATHEMATICS AT TECHNICAL UNIVERSITIES

The paper deals with conceptual aspects of educational system of mathematics in technical universities on the basis of interactive educational system of physics.

UDC 371.134

O.A. Galanova

FOREIGN LANGUAGE IN THE COMPETENCE MODEL OF MASTERS' TRAINING

The paper suggests a didactic model of language professional training of specialists in the sphere of science.

UDC 55(092)

V.V. Zhokhovskaya, A.V. Gagarin, I.T. Lozovsky

PAVEL PAVLOVICH GUDKOV: A FOUNDER OF TPU SCHOOL OF MICROANALYSIS

The paper is devoted to Pavel Pavlovich Gudkov, a Russian scientist, professor of Tomsk Technological Institute (TPU), petrologist, and a founder of the school of microanalysis. P.P. Gudkov made two greatest countries, e.i. Russia and the USA ones of the most famous ones. He discovered large oil and gold deposits in the USA and Russia and established the first laboratory of microanalysis in Los-Angeles. Pavel Pavlovich Gudkov also discovered potential oil-bearing formations by conducting a microscopical analysis of minerals and foraminifera remainders.

UDC 553(092)

I.V. Kucherenko

THE RESEARCHER OF DAURIYA DEPOSITS (75th ANNIVERSARY OF PROFESSOR G.V. SHUBIN)

TThe paper describes the life and creative work of Professor Genrikh Vladimirovich Shubin, the head of the departments of general and historical geology (1979–1986), mineralogy and petrography of Tomsk Polytechnic Institute (University) in 1986–1997.

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S.G. Maslov

STANISLAV IVANOVICH SMOLYANINOV: LIFE DEVOTED TO SCIENCE

On December 28, 2005, TPU will celebrate the 80th anniversary of Stanislav Ivanovich Smolyaninov, an honoured worker of science and engineering of the Russian Soviet Federative Socialist Republic, a doctor of technical sciences, a professor, the head of the department of fuel applied chemistry, and the oldest researcher of Tomsk peat bogs. All his scientific activities were aimed at industry development in Siberia. He was the one to make the department of fuel applied chemistry the best at TPI.